

**A central registry dealing with  
the implantation of  
pacemakers to treated  
patients**

**Analysis of year 2020**

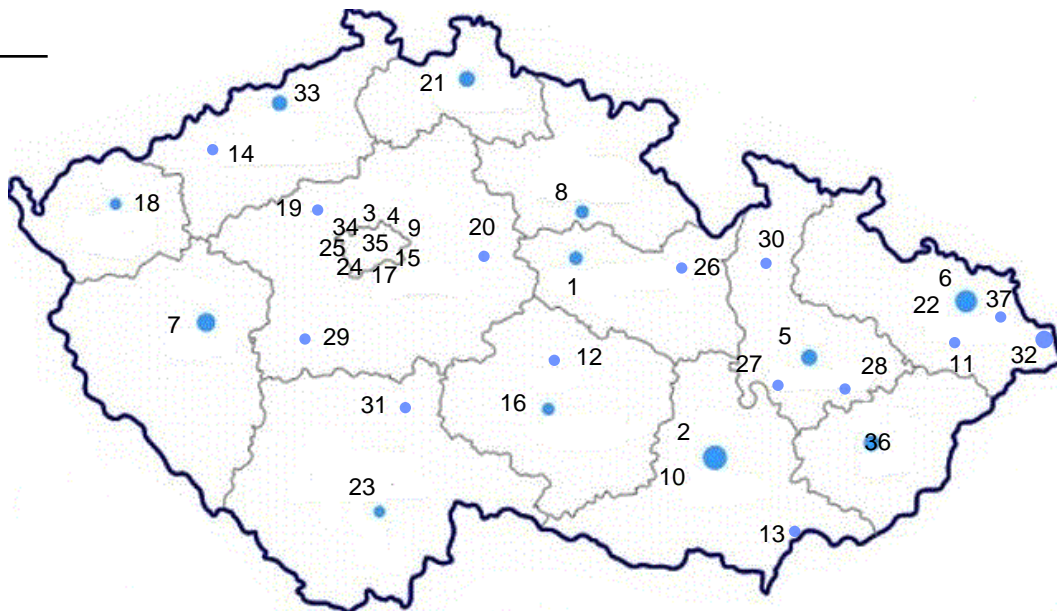
**Export: 11/03/2021**



**Expert guarantor:  
prof. Miloš Táborský, MD, PhD., FESC, MBA**

# Cooperated centres

- 1 Kardiologické centrum AGEL a.s.
- 2 The University Hospital Brno – Dep. of Cardiology
- 3 The University Hospital Motol – Children´ Cardiocentre
- 4 The University Hospital Motol – Dep. of Cardiology
- 5 The University Hospital Olomouc – 1st Dep. of Medicine
- 6 The University Hospital Ostrava – Dep. of Cardiovascular Medicine
- 7 The University Hospital Plzeň – Dep. of Cardiology, arytmology
- 8 The University Hospital Hradec Králové – 1st Dep. of Internal Medicine
- 9 The University Hospital Královské Vinohrady – 3rd Dep. of Internal Medicine – Cardiology
- 10 The St. Anne's University Hospital Brno – Dep. of Cardiology
- 11 Hospital in Frýdek-Místek – Dep. of Internal Medicine
- 12 Hospital in Havlíčkův Brod – Dep. of Internal Medicine
- 13 TGM Hospital Hodonín – Centre of Cardiac Stimulation
- 14 Chomutov – Dep. of Internal Medicine
- 15 The Institute of Clinical and Experimental Medicine – Department of Cardiology
- 16 Jihlava – Dep. of Cardiology
- 17 The University Hospital Bulovka – Cardiology
- 18 Karlovy Vary – Kardiocentrum
- 19 Kladno – Dep. of Internal Medicine
- 20 Kolín – Dep. of Internal Medicine
- 21 Liberec – Cardio Centre
- 22 Ostrava City Hospital – Cardiology
- 23 Hospital in České Budějovice – Cardio Centre
- 24 Hospital of Merciful Sisters – Dep. of Internal Medicine
- 25 Hospital „Na Homolce“ – Dep. of Cardiology
- 26 Hospital in Ústí nad Orlicí – Dep. of Internal Medicine



- 27 Prostějov – Dep. of Internal Medicine
- 28 Přerov – Dep. of Internal Medicine
- 29 Příbram – Dep. of Internal Medicine
- 30 Šumperk – Dep. of Internal Medicine
- 31 Tábor – Dep. of Internal Medicine
- 32 Třinec – Cardio Centre
- 33 Ústí nad Labem – Dep. of Cardiology
- 34 ÚVN – Dep. of Cardiology
- 35 The General University Hospital in Prague – 2nd Dep. of Internal Cardiovascular Medicine
- 36 Zlín – Dep. of Internal Medicine
- 37 Havířov Hospital with Polyclinic – Dep. of Internal Medicine

# Cooperated centres – number of records

Base: All records 2020 (N = 9 753)

REPACE

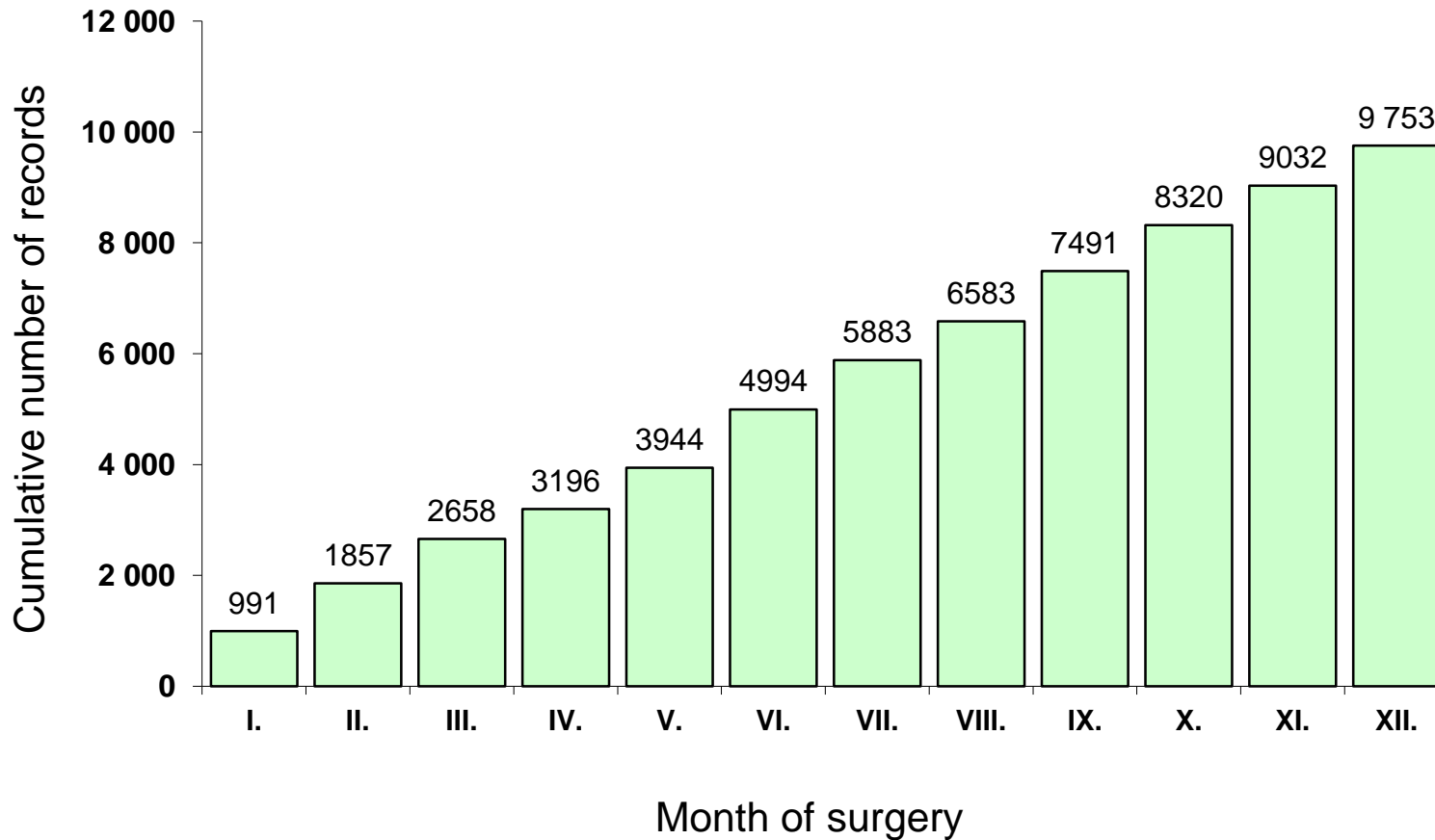
Procedure type/ Centre	Primo-implantation (N = 7 265)	Re-implantation (N = 2 185)	Upgrade (N = 151)	Explantation (N = 32)	Electrode surgery (N = 92)	Other surgery (N = 28)	Total (N = 9 753)
Nemocnice Na Homolce - Kardiologické odd.	465	175	4	9	4	-	657
FN Brno - Kardiologická klinika	478	117	-	-	-	-	595
IKEM Praha - Kardiologická klinika	344	151	18	6	24	1	544
Liberec - Kardiocentrum	386	113	12	3	5	16	535
FNHK - 1. IK	314	124	43	-	-	-	481
FNUSA Brno - Kardiologická klinika	358	111	2	-	1	-	472
FNKV Praha – III.interní - kardiologická klinika	330	131	4	-	5	-	470
FN Ostrava - Kardiiovaskulární odd.	368	68	9	-	6	-	451
FN Olomouc - I. interní klinika - kardiologická	310	72	6	-	-	-	388
Nemocnice České Budějovice - kardiocentrum	307	67	9	-	-	-	383
FN Plzeň - Kardiologické odd.	292	82	-	-	-	-	374
Třinec - Podlesí - kardiocentrum	266	65	4	2	3	-	340
Zlín - Kardiologické oddělení	270	48	1	-	2	1	322
Orlickoústecká nemocnice - interní odd.	282	6	-	-	-	-	288
Kardiologické centrum AGEL a.s.	197	68	1	4	14	-	284
ÚnL - Kardiologické odd.	228	39	-	-	2	-	269
Městská nemocnice Ostrava - Kardiologie	197	47	8	-	-	1	253
FN Motol - Kardiologické oddělení	182	37	19	1	9	-	248
VFN Praha - II.IK - Kardiologická klinika	139	102	5	-	-	-	246
Karlovy Vary nemocnice - Kardiocentrum	171	58	1	4	7	-	241
Kardiologie na Bulovce, s.r.o.	166	58	1	-	-	-	225
Tábor - Interní odd.	163	35	-	1	-	-	199
Kladno - Interní odd.	104	68	-	-	-	6	178
ÚVN - Kardiologické odd.	123	41	2	-	4	-	170
Kolín - Interní odd.	98	55	2	-	4	-	159
Frýdek Místek - Interní oddělení	87	61	-	-	-	-	148
Jihlava - Kardiologické odd.	113	31	-	-	-	-	144
Přerov - Interní odd.	94	32	-	-	-	-	126
Šumperk - Interní odd	89	19	-	-	-	-	108
Prostějov - Interní odd.	81	24	-	1	1	-	107
Hodonín - Kardiostimul.centrum Nem. TGM p.o.	77	24	-	1	-	-	102
Chomutov - Interní odd.	77	18	-	-	-	-	95
Příbram - Interní oddělení	62	13	-	-	-	3	78
Havlíčkův Brod - Interní oddělení	36	13	-	-	1	-	50
FN Motol - Dětské kardiocentrum	11	12	-	-	-	-	23

# Cumulative number of records in time

Base: All records 2020 (N = 9 753)

REPACE

There are **9 753** records for year 2020.



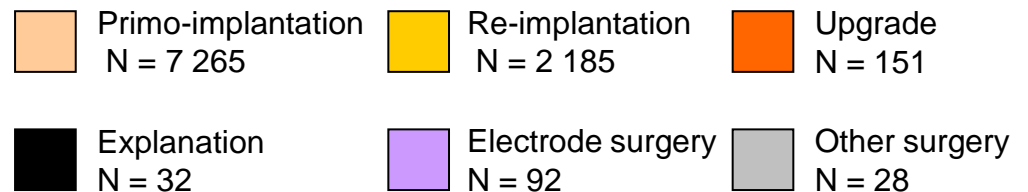
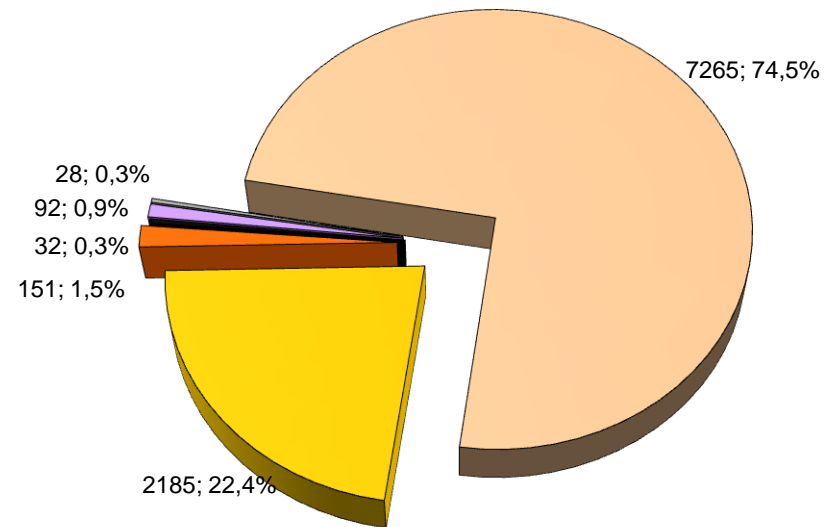
# Number of records according to procedure type

Base: All records 2020 (N = 9 753)

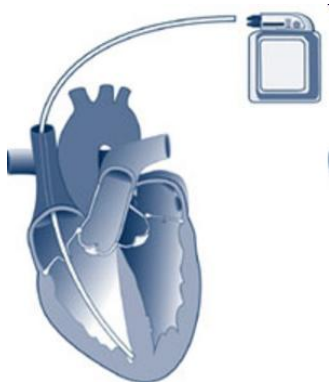
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Procedure type	N	%
<i>Primo-implantation</i>	7265	74.5
<i>Re-implantation</i>	2185	22.4
<i>Upgrade</i>	151	1.5
<i>Explantation</i>	32	0.3
<i>Electrode substitution</i>	56	0.6
<i>Electrode reposition</i>	24	0.2
<i>Electrode extraction</i>	12	0.1
<i>Other surgery</i>	28	0.3
<b>Total</b>	9 753	100.0

## Procedure type aggregation



**Completed records:  
Implanted devices and  
surgery  
N = 9 753**



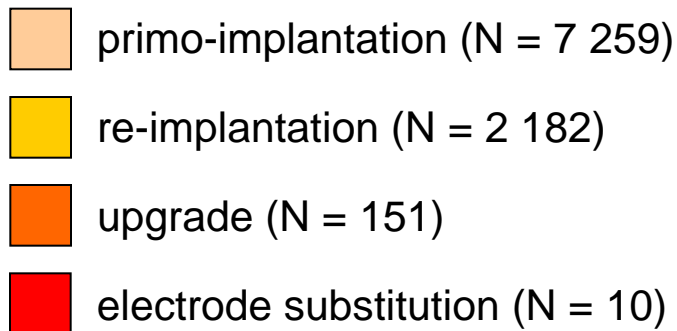
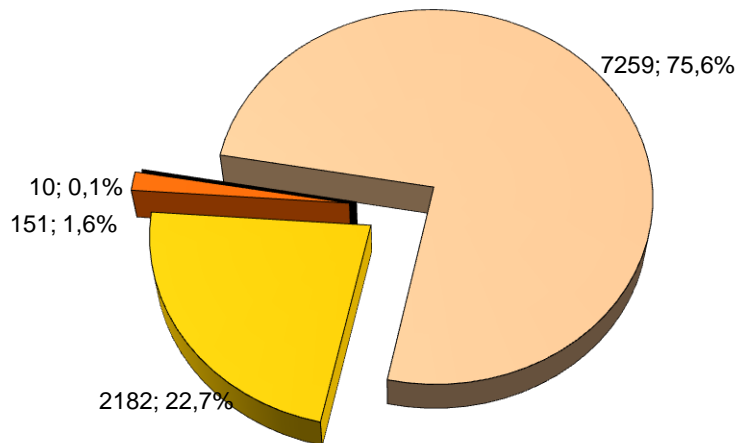
# Implanted and explanted devices – surgery type

Base: All records 2020 (N = 9 753)

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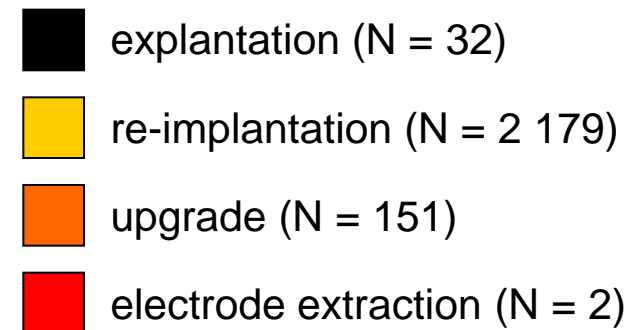
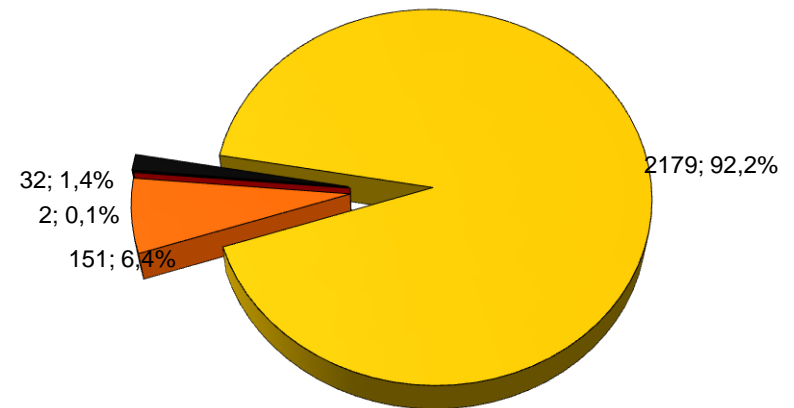
## Implanted devices

N = 9 602



## Explanted devices

N = 2 364



More than 2/3 of devices are implanted as primo-implantation. Minimal number of devices are just explanted.

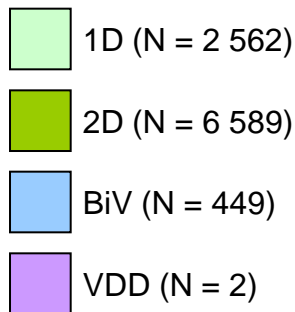
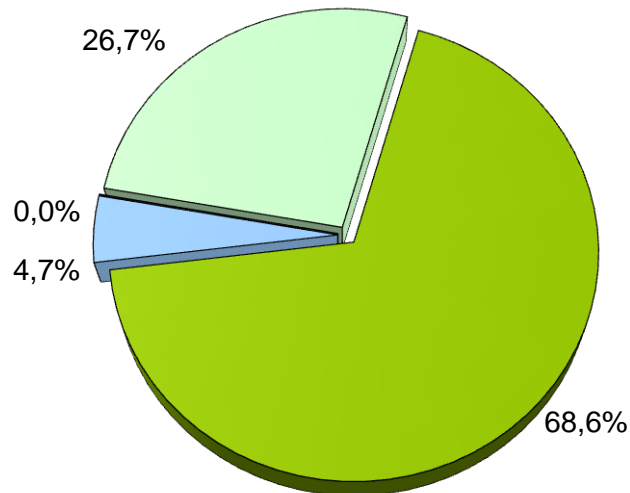
# Implanted and explanted devices – device type

Base: All records 2020 (N = 9 753)

REPACE

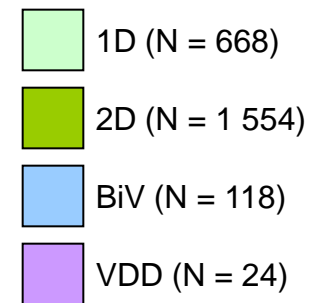
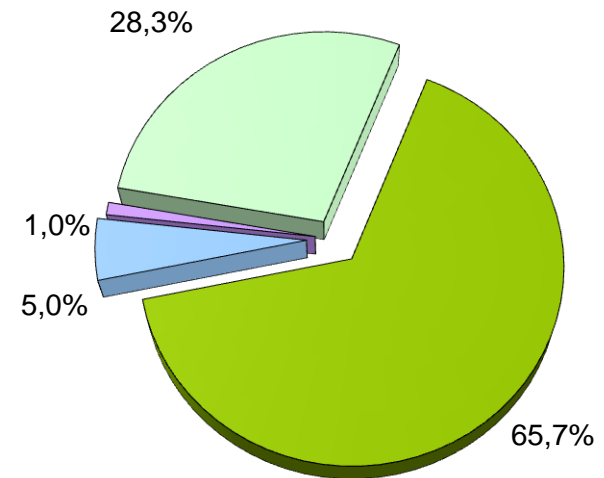
## Implanted devices

N = 9 602



## Explanted devices

N = 2 364



2D pacemaker is the most used device. It prevail among implanted also explanted devices.

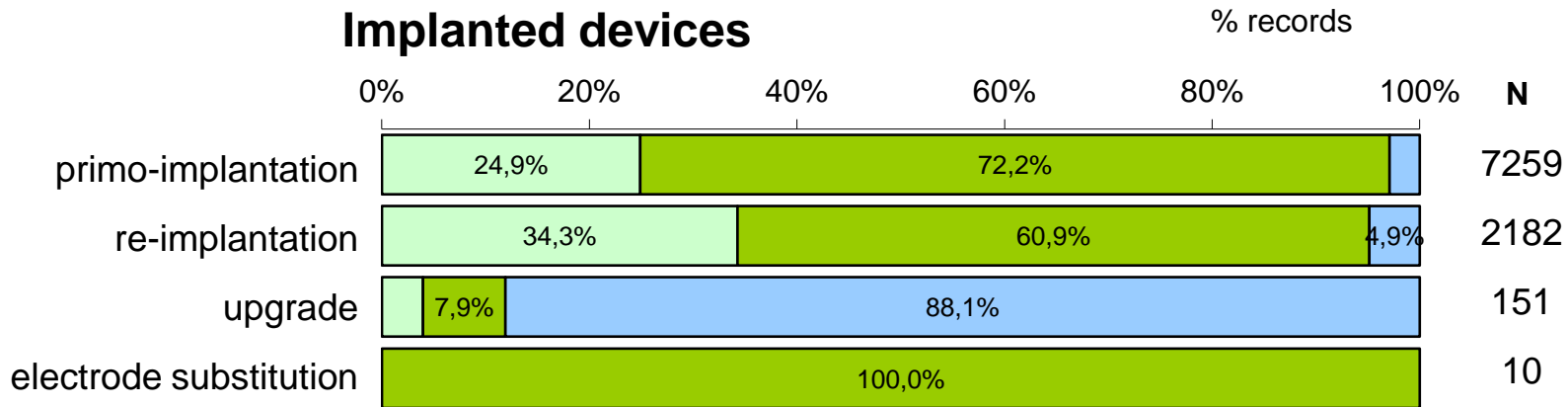


# Device type according to surgery

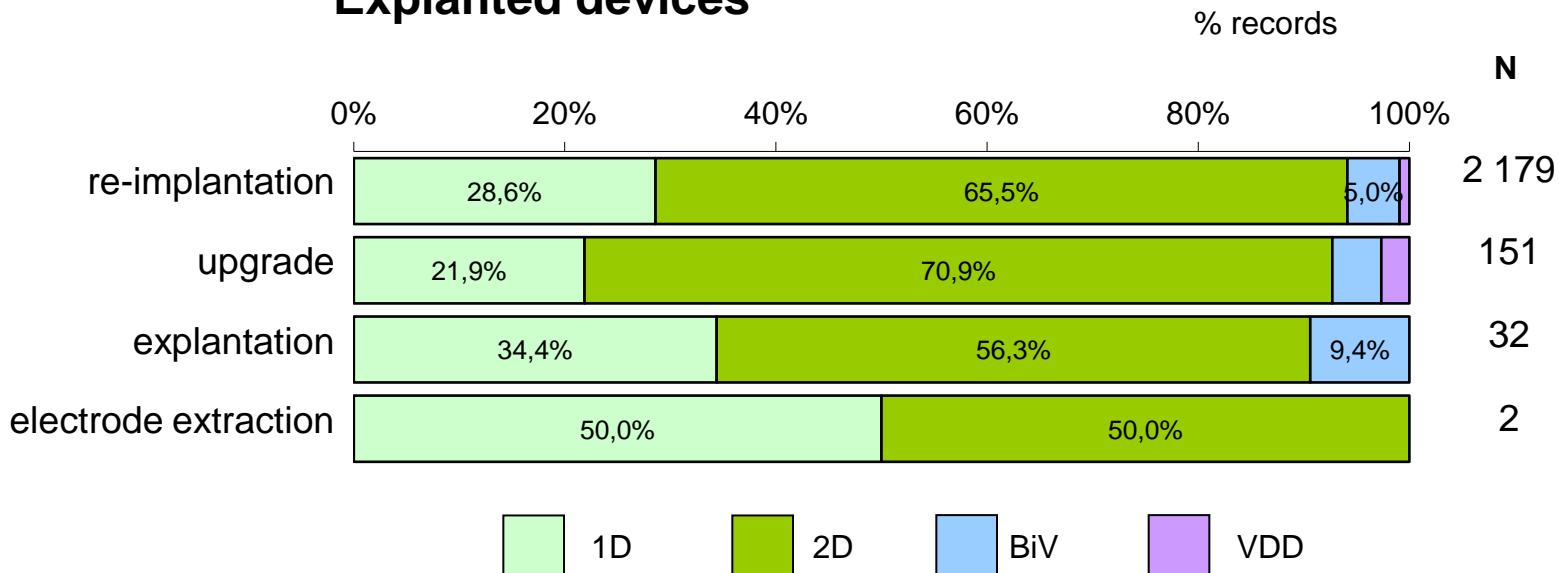
Base: All records 2020 (N = 9 753)

REPACE

## Implanted devices



## Explanted devices



# Etiology according to surgery type

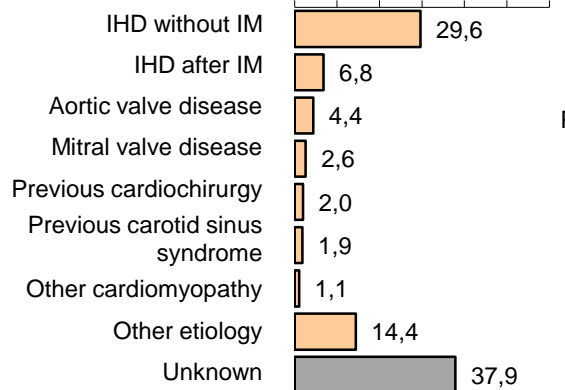
Base: All records 2020 (N = 9 753)

REPACE

**Primo-implantation**  
(N = 7 265)

% records

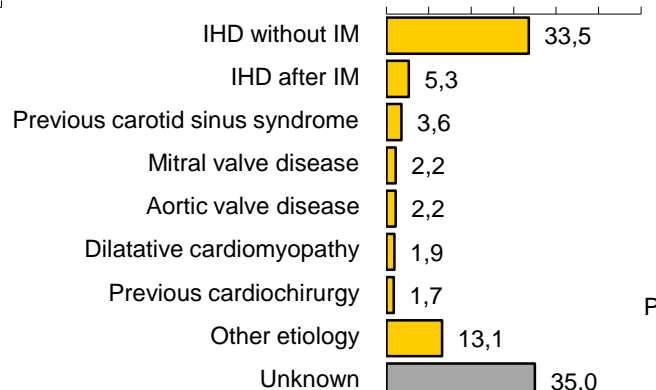
0 10 20 30 40 50 60



**Re-implantation**  
(N = 2 185)

% records

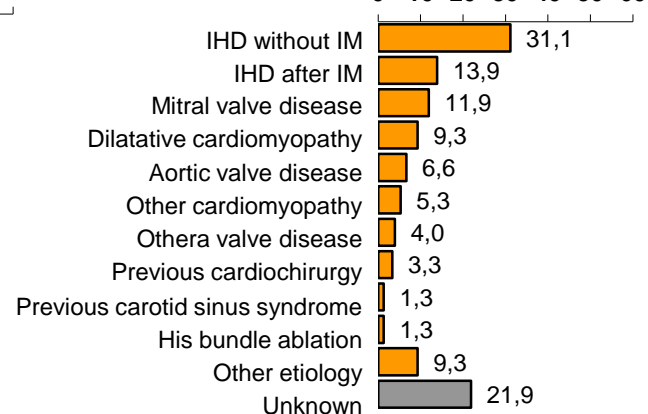
0 10 20 30 40 50 60



**Upgrade**  
(N = 151)

% records

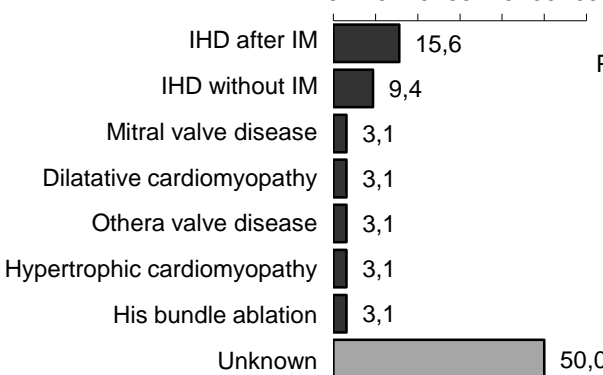
0 10 20 30 40 50 60



**Explantation**  
(N = 32)

% records

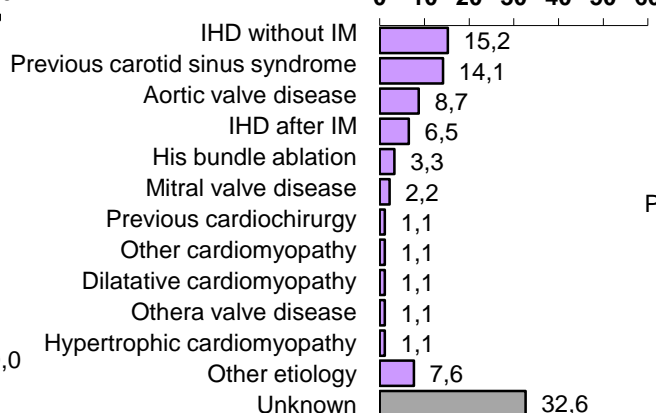
0 10 20 30 40 50 60



**Electrode surgery**  
(N = 92)

% records

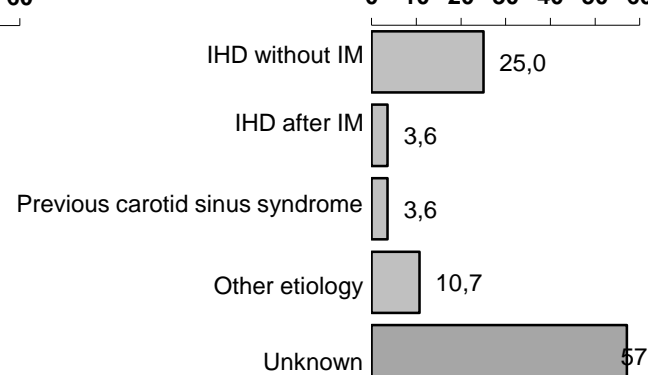
0 10 20 30 40 50 60



**Other surgery**  
(N = 28)

% records

0 10 20 30 40 50 60



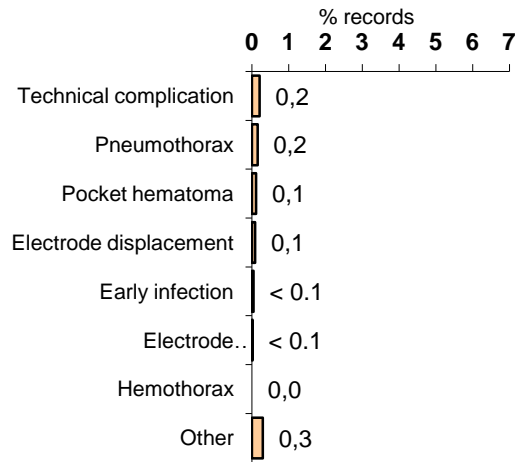
Only etiologies with incidence over 1 % are visualized.

# Surgery complication – according to type of surgery

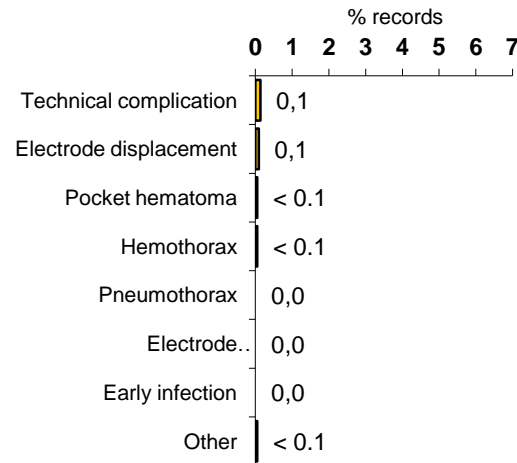
Base: All records 2020 (N = 9 753)

REPACE

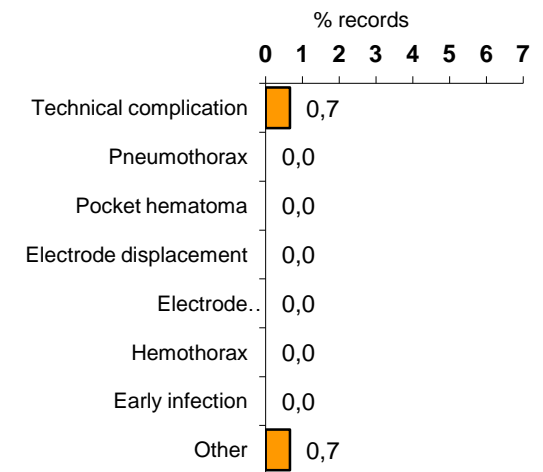
**Primo-implantation**  
(N = 7 265)



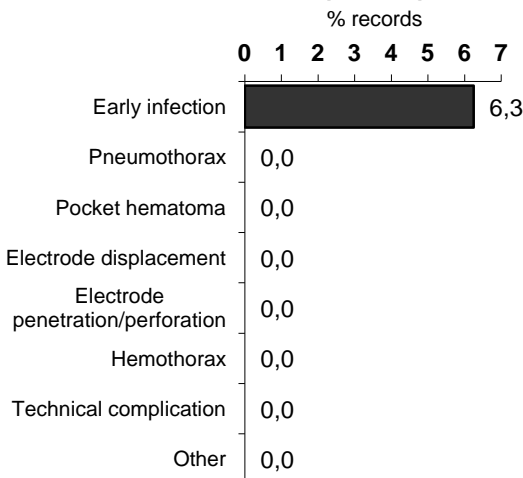
**Re-implantation**  
(N = 2 185)



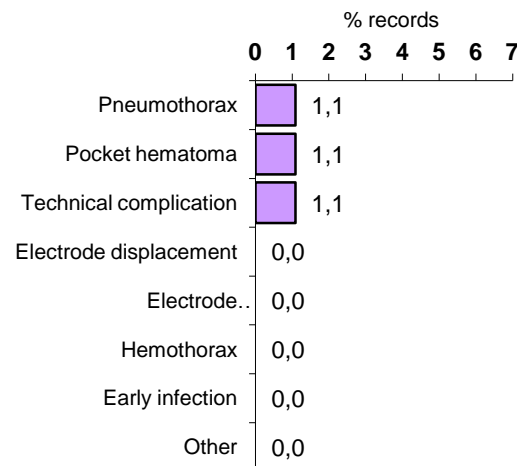
**Upgrade**  
(N = 151)



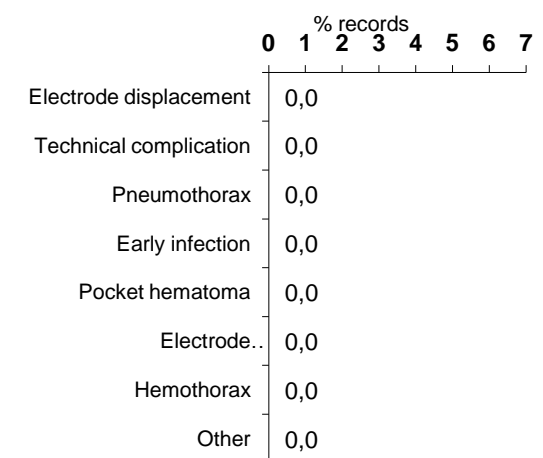
**Explantation**  
(N = 32)



**Electrode surgery**  
(N = 92)

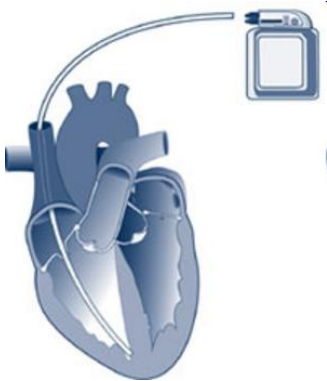


**Other surgery**  
(N = 28)



Surgery complications are quite rare. There are almost no complications during primo- or re-implantation.

**Complete records:  
Population characteristics  
(without electrode surgery)  
N = 9 661**



# Number of records according to surgery type

*N = 9 661 records of surgery on device (without electrode surgery)*

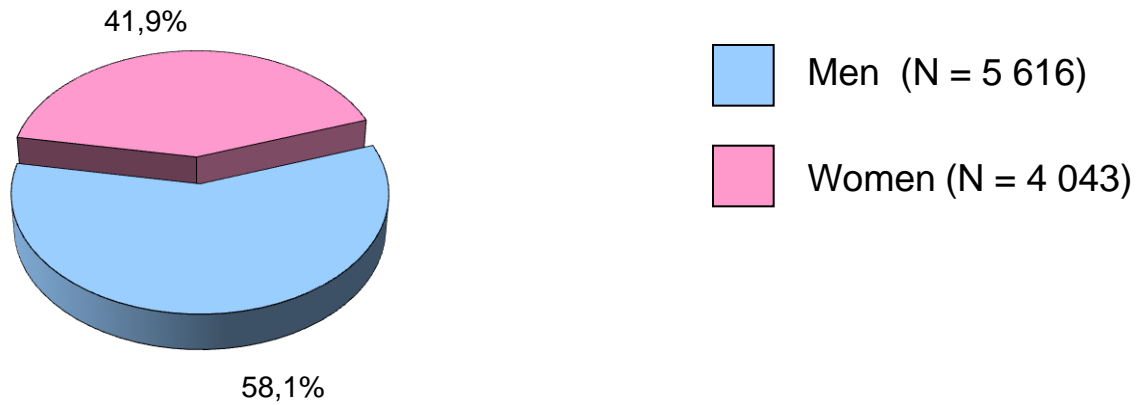
Surgery type	Complete records	
	N	%
<i>Primo-implantation</i>	7265	74.5
<i>Re-implantation</i>	2185	22.4
<i>Upgrade</i>	151	1.5
<i>Explantation</i>	32	0.3
<i>Electrode substitution</i>	56	0.6
<i>Electrode reposition</i>	24	0.2
<i>Electrode extraction</i>	12	0.1
<i>Other surgery</i>	28	0.3
<b>Total</b>	9 753	100.0

# Patients according to sex

Base: Completed records 2020 without electrode surgery (N = 9 661)

REPACE

## Patient sex\*

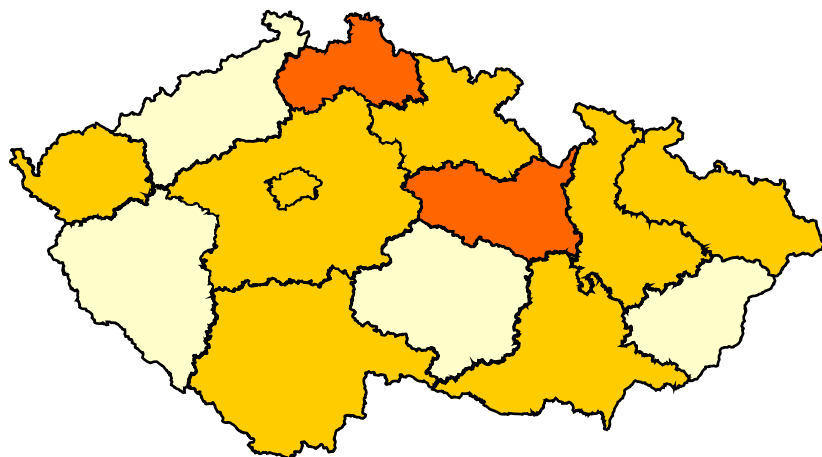


\* Unknown sex in two patients.

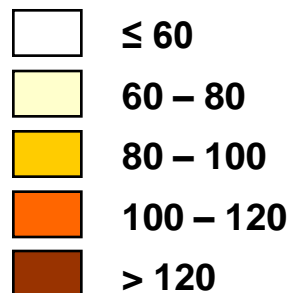
# Incidence according to patients region

Base: Completed records 2020 without electrode surgery (N = 9 661)

REPACE



**Incidence**  
(per 100 000 population per year):

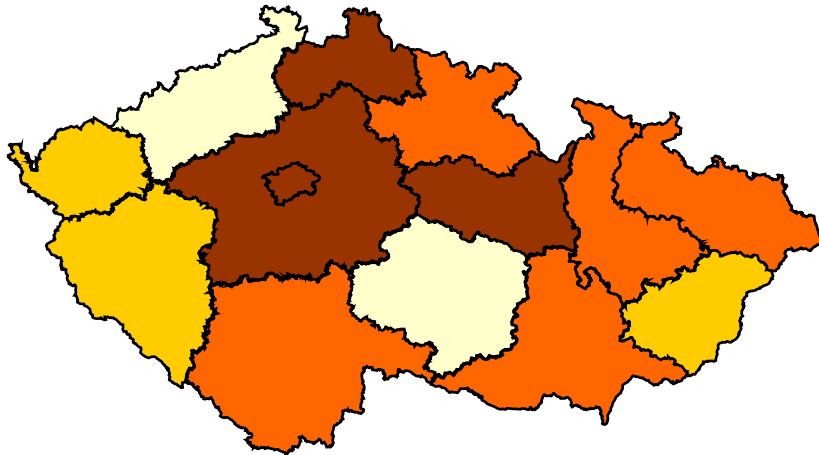


Region	Records		
	N	%	N/100 000 popul.
Liberecký	517	5.4	117
Pardubický	545	5.6	104
Praha hl. m.	1324	13.7	100
Olomoucký	630	6.5	100
Středočeský	1343	13.9	96
Moravskoslezský	1146	11.9	96
Královéhradecký	519	5.4	94
Jihočeský	573	5.9	89
Jihomoravský	1027	10.6	86
Karlovarský	253	2.6	86
Zlínský	461	4.8	79
Plzeňský	402	4.2	68
Ústecký	541	5.6	66
Vysočina	330	3.4	65
Abroad / unknown	50	0.5	
<b>Total</b>	<b>9661</b>	<b>100.0</b>	

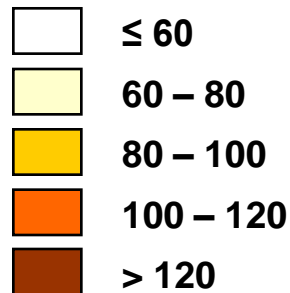
# Incidence according to patients region - men

Base: Completed records 2020 without electrode surgery - men (N = 5 616)

REPACE



**Incidence**  
(per 100 000 population per year):



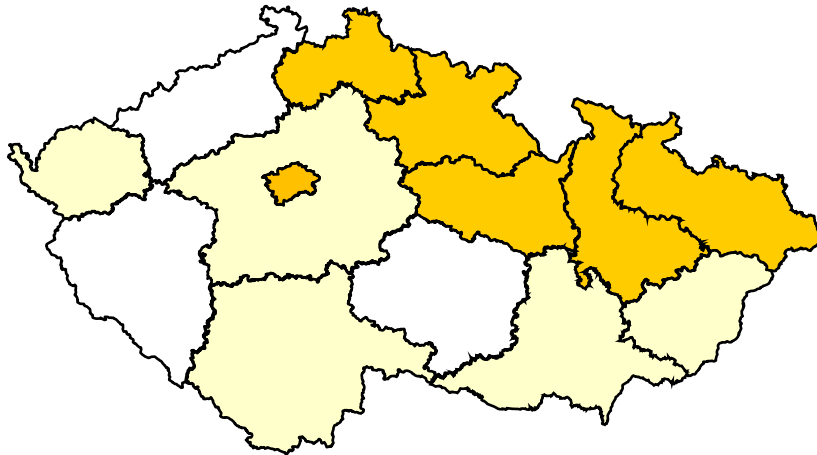
Region	Records		
	N	%	N/100 000 popul.
Liberecký	308	5.5	142
Pardubický	329	5.9	128
Praha hl. m.	783	13.9	124
Středočeský	816	14.5	122
Moravskoslezský	639	11.4	108
Královéhradecký	293	5.2	108
Olomoucký	327	5.8	106
Jihomoravský	607	10.8	105
Jihočeský	326	5.8	103
Karlovarský	141	2.5	97
Zlínský	261	4.6	91
Plzeňský	252	4.5	87
Ústecký	321	5.7	79
Vysočina	183	3.3	72
Abroad / unknown	30	0.5	
<b>Total</b>	<b>5 616</b>	<b>100</b>	



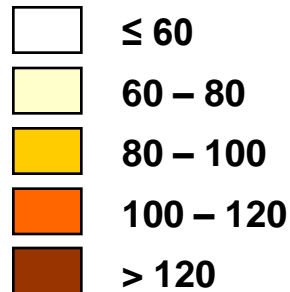
# Incidence according to patients region - women

Base: Completed records 2020 without electrode surgery - women (N = 4 043)

REPACE



**Incidence**  
(per 100 000 population per year):

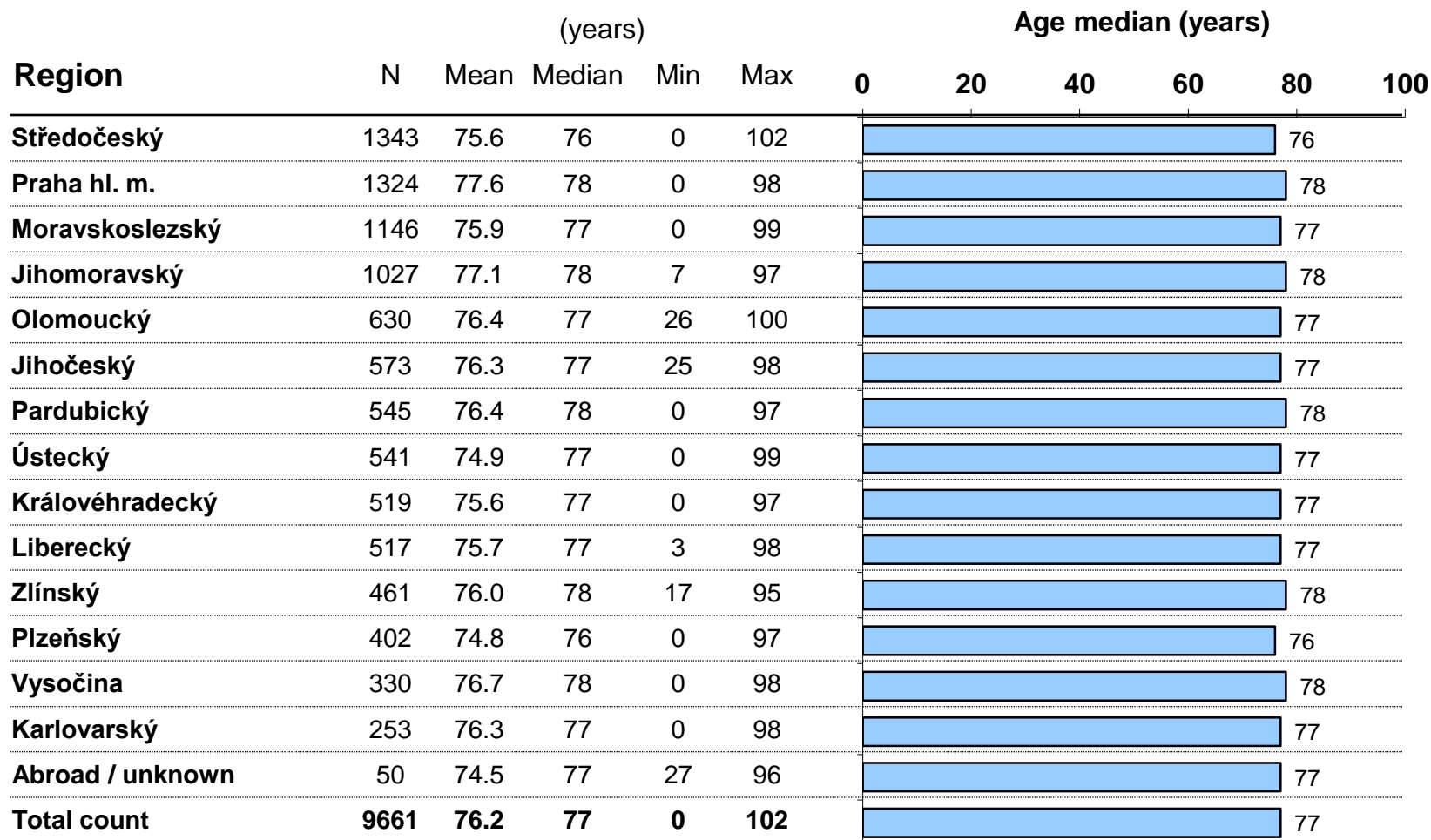


Kraj	Záznamy		
	N	%	N/100 000 obyv.
Olomoucký	303	7.5	94
Liberecký	209	5.2	93
Moravskoslezský	507	12.5	83
Pardubický	216	5.3	83
Praha hl. m.	541	13.4	81
Královéhradecký	226	5.6	81
Středočeský	526	13.0	77
Jihočeský	247	6.1	76
Karlovarský	112	2.8	75
Jihomoravský	420	10.4	70
Zlínský	199	4.9	67
Vysočina	147	3.6	57
Ústecký	220	5.4	53
Plzeňský	150	3.7	51
Abroad / unknown	20	0.5	
<b>Total</b>	<b>4 043</b>	<b>100</b>	

# Patients age in time of the surgery – according to region

Base: Completed records 2020 without electrode surgery (N = 9 661)

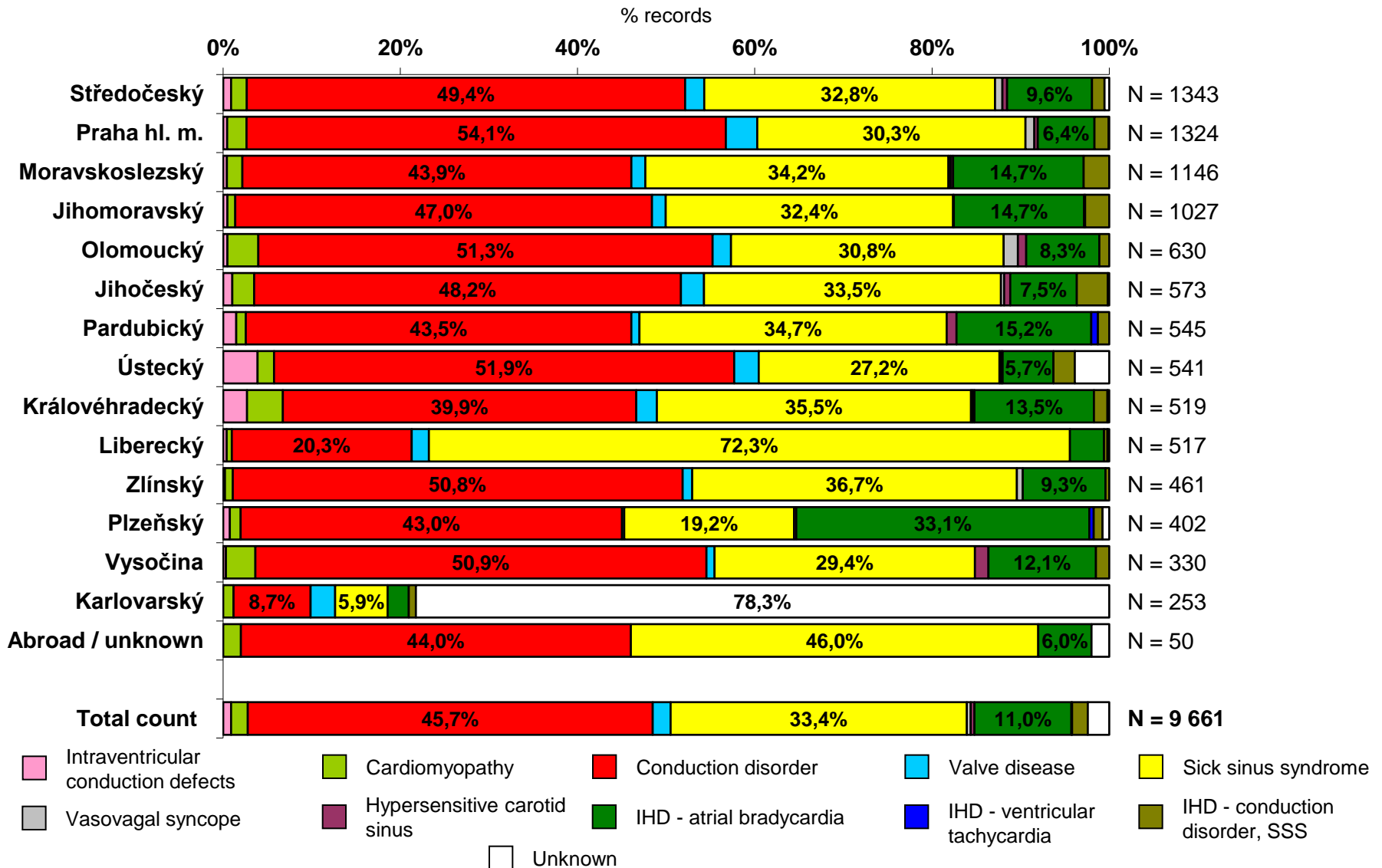
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# Main diagnoses overview – according to region

Base: Completed records 2020 without electrode surgery (N = 9 661)

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# Surgery type overview – according to region

Base: Completed records 2020 without electrode surgery (N = 9 661)

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